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PUBLIC UTILITIES COMM.
STATE OF CALIF.

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INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3558

SPOKANE, PORTLAND AND SEATTLE
RAILWAY SYSTEM

IN RE. ACCIDENT

NEAR CAMBRAI, OREG., ON

JANUARY 31, 1954

SUMMARY

Date: January 31, 1954

Railroad: Spokane, Portland and Seattle

Location: Cambrai, Oreg.

Kind of accident: Derailment

Train involved: Freight

Train number: Extra 857 West

Engine number: Diesel-electric units 857, 204,
and 867

Consist: 58 cars, caboose

Speed: 35 m. p. h.

Operation: Timetable, train orders, and
automatic block-signal system

Track: Single; spiral to 4° curve; 0.35
percent descending grade westward

Weather: Clear

Time: 11:50 p. m.

Casualties: 2 killed

Cause: Rock slide

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3558

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

SPOKANE, PORTLAND AND SEATTLE RAILWAY SYSTEM

March 15, 1954

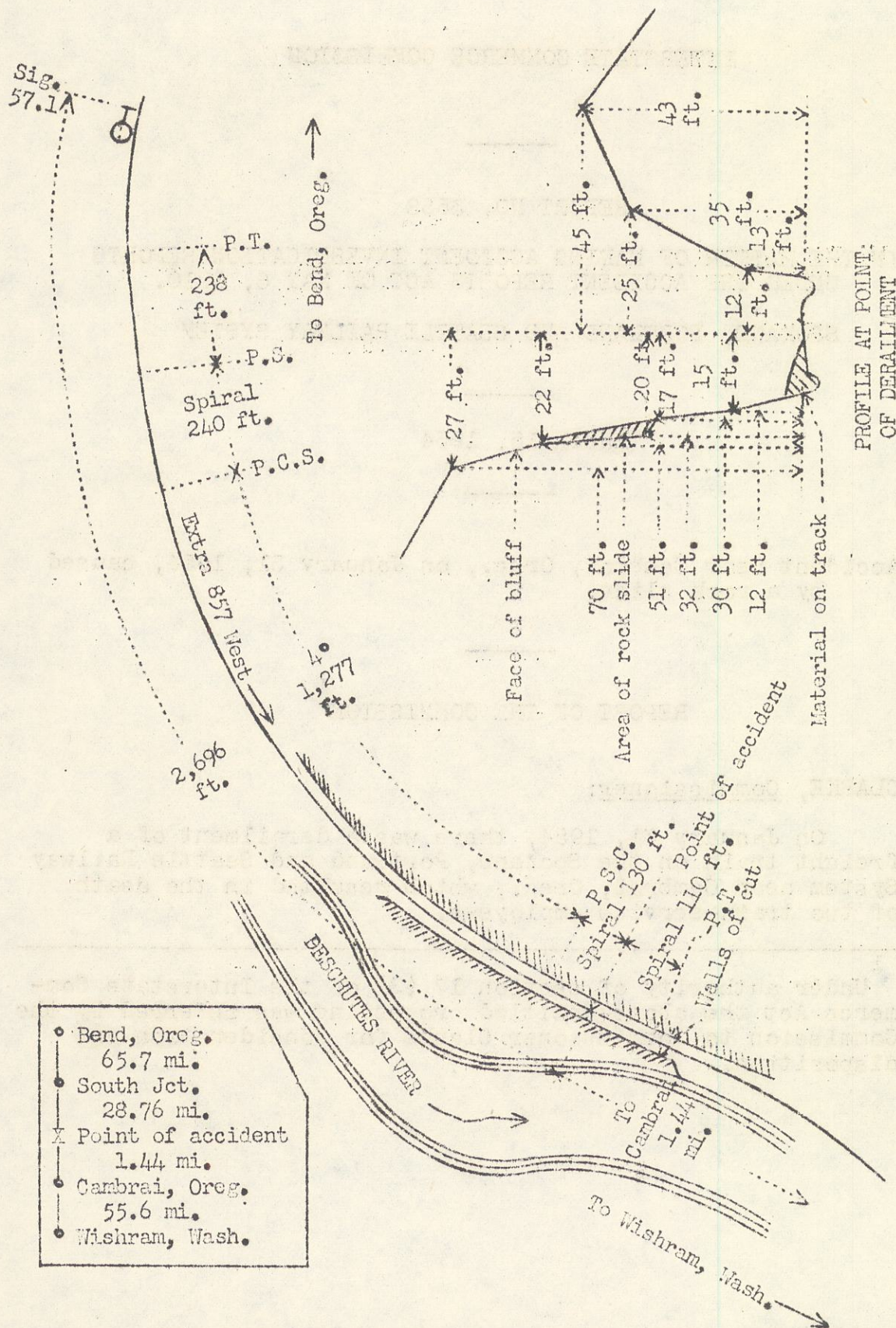
Accident near Cambrai, Oreg., on January 31, 1954, caused
by a rock slide.

REPORT OF THE COMMISSION

CLARKE, Commissioner:

On January 31, 1954, there was a derailment of a freight train on the Spokane, Portland and Seattle Railway System near Cambrai, Oreg., which resulted in the death of two train-service employees.

¹
Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Clarke for consideration and disposition.



- Bend, Oreg. 65.7 mi.
- South Jct. 28.76 mi.
- X Point of accident 1.44 mi.
- Cambrai, Oreg. 55.6 mi.
- Wishram, Wash.

Report No. 3558
 Spokane, Portland and Seattle Railway System
 Cambrai, Oreg.
 January 31, 1954

Location of Accident and Method of Operation

This accident occurred on that part of the Spokane, Portland and Seattle Railway System designated as the Oregon Trunk Railway and extending between Bend, Oreg., and Wishram, Wash., 151.5 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by timetable, train orders, and an automatic block-signal system. The accident occurred on the main track at a point 94.46 miles west of Bend and 1.44 miles east of Cambrai, Oreg. From the east there are, in succession, a tangent 238 feet in length, a spiral 240 feet, a 4° curve to the left 1,277 feet, and a spiral 130 feet to the point of accident and 110 feet westward. The grade for west-bound trains is 0.35 percent descending at the point of accident.

The track structure consists of 131-pound rail, 39 feet in length, laid in 1944 on an average of 23 treated ties to the rail length. It is fully tieplated with double-shoulder tieplates, spiked with two rail-holding spikes and one anchor spike per tieplate, and is provided with 4-hole 24-inch joint bars and an average of 16 rail anchors per rail. It is ballasted with crushed rock to a depth of 12 inches below the bottoms of the ties.

In the vicinity of the point of accident the railroad parallels the Deschutes River on the south. The accident occurred 430 feet west of the east end of a through rock cut 584 feet in length. West of this through cut, the track is laid in a sidehill cut and is about 26 feet above the level of the shore-line of the river and 30 feet horizontally distant from it. At the point of accident the toe of the south wall of the cut is 13 feet from the center-line of the track, and at a point 70 feet above the level of the track the wall is 27 feet south of the center-line of the track. Above this point the ground slopes upward at a ratio of about 1 to 5 throughout a distance of approximately 1/2 mile to the top of the plateau. The toe of the north wall of the cut is 10 feet from the center-line of the track, and at points 35 feet and 43 feet above the level of the track the wall is, respectively, 25 feet and 45 feet north of the center-line of the track. North of the latter point the ground slopes downward to the river. A ditch 2 feet in depth is provided on each side of the track.

The rock in the cut in which the accident occurred is of volcanic origin. The lower portion of the rock is scoria, and the upper portion is stratified columnar basalt. The line of demarcation between the scoria and the columnar basalt is at rail height at the west end of the cut and rises in an irregular line to a height of 12 feet above the level of the track at the point of accident and 30 feet above the level of the track at the east end of the cut.

Automatic signal 57.1, governing west-bound movements, is located 2,696 feet east of the point of accident.

The maximum authorized speed for freight trains in the vicinity of the point of accident is 35 miles per hour.

Description of Accident

Extra 857 West, a west-bound freight train, consisted of Diesel-electric units 857, 204, and 867, coupled in multiple-unit control, 58 cars, and a caboose. At Bend the crew received copies of train order No. 542 reading as follows:

RUN CAREFULLY BETWEEN WISHRAM AND BEND AT POINTS WHERE
LIKELY TO BE AFFECTED BY SLIDES FALLING ROCKS AND WASHOUTS

This train departed from Bend at 8:30 p. m., passed South Jct., 28.76 miles east of the point of accident and the last open office, at 10:49 p. m., passed signal 57.1, which indicated Proceed, and while moving at a speed of 35 miles per hour, as indicated by the tape of the speed-recording device, it struck a rock slide at a point 94.46 miles west of Bend and 1.44 miles east of Cambrai.

The three Diesel-electric units and the first 17 cars were derailed. The coupler at the rear of the first Diesel-electric unit was broken. This unit left the roadbed and fell into the river at a point 189 feet west of the point of accident. The second and third Diesel-electric units remained coupled and stopped approximately in line with the track. The front end of the second unit was 349 feet west of the point of accident. The second car stopped in the river. The other derailed cars stopped in various positions on or near the track. The first Diesel-electric unit was badly damaged, the first to the fifteenth cars, inclusive, were considerably damaged, and the second and third Diesel-electric units and the sixteenth and seventeenth cars were slightly damaged.

The engineer and the fireman were killed.

The weather was clear at the time of the accident, which occurred about 11:50 p. m.

Discussion

As Extra 857 West was approaching the point where the accident occurred the enginemen and the front brakeman were in the control compartment at the front of the first Diesel-electric unit. The conductor, the swing brakeman, and the flagman were in the caboose. The headlight was lighted brightly. The brakes of the train had been tested and apparently had functioned properly when used en route. The front brakeman said that after the train passed signal 57.1, which indicated Proceed, he left the control compartment at the front of the first Diesel-electric unit and went to the control compartment at the rear of the third unit. As he entered the compartment he observed that the engineer had made a brake-pipe reduction. Immediately afterward there was an emergency application of the brakes, and the Diesel-electric unit then became derailed. Because of curvature of the track and the walls of the cut, the view of the track in the immediate vicinity of the point of accident from an approaching west-bound locomotive is restricted to a distance of approximately 275 feet. The fact that there was an emergency application of the brakes before the derailment occurred indicates that the enginemen saw the obstruction on the track immediately after the locomotive reached a point from which it was visible.

Examination after the accident disclosed that approximately 20 cubic yards of rock had become dislodged from the upper portion of the south wall of the cut and had fallen into the ditch and upon the track. This rock had become dislodged from an area approximately 23 feet in length and extending between points 30 feet and 50 feet above the level of the track.

Apparently the rock became dislodged as a result of the action of rainfall and alternate freezing and thawing over a long period of time. The cut in which the accident occurred was completed in 1910. On December 24, 1952, approximately 4 cubic yards of rock became dislodged from the north wall of the cut. With this exception, only minor dislodgements of rock had occurred prior to the time of the accident. The track in the vicinity of the point of accident was inspected by the roadmaster 2 days before the accident occurred and by the track inspector and the section foreman on the day

before the accident occurred. A track patrolman passed through the cut about 11 p. m. on the day of the accident. These employees observed no indication that a slide might occur. An east-bound freight train passed through the cut about 4 hours 25 minutes before the accident occurred. The crew of this train observed no unusual condition.

Cause

This accident was caused by a rock slide.

Dated at Washington, D. C., this fifteenth day of March, 1954.

By the Commission, Commissioner Clarke.

(SEAL):

GEORGE W. LAIRD,

Secretary.